InfoVis.net>Magazine>message nº 85
También disponible en Español
Published 2002-04-22

Inf@Vis!

The digital magazine of InfoVis.net

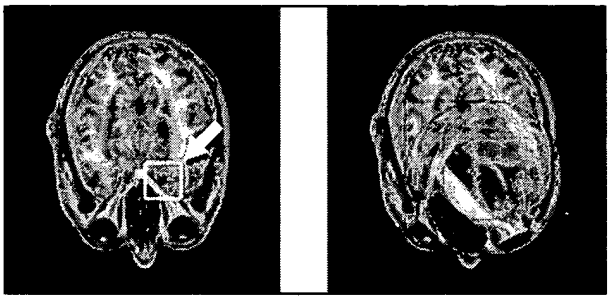
Focus+Context	
by Juan C. Dürsteler	[message nº 85]

The problem of displaying large amounts of information seeing at the same time what is the focus of our attention without losing the context has been under study for some time. The PDT proposes a way to solve it that can substitute the traditional zoom with a powerful visualisation tool.

The inconvenience when you have information in excess is that you don't know where to put it. Even though it may sound bizarre, information and wisdom do actually take up space! At least on the screen.

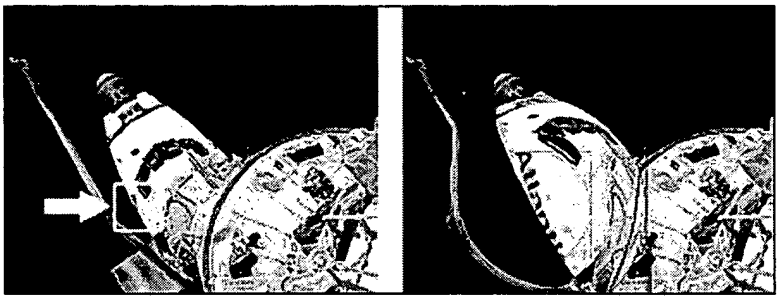
A common problem in the systems that display large quantities of data is that **its visualisation in a limited space, like that of the screen, doesn't allow you to see the detail and the context at once**. This is the so called "***Presentation Problem***" (see e.g. Bob Spence's book Information Visualization, section 7.3)

In order to remedy this problem different solutions have seen the light, some of which have already been mentioned in the issue number_3. These type of solutions are grouped on what is **called "focus plus context" systems, since they allow you to have the information of our interest in the foreground and all the remaining information in the background simultaneously visible**. We see the trees without missing the forest.



Pliable Display Technology applied to the visualisation of damaged optical nerve. The remaining of the brain is still visible without loss of information.

Image courtesy of Idelix
Click on the image to enlarge it.



PDT applied to an image of the space shuttle. Zooming the side of the fuselage reveals the name of the vehicle that is "Atlantis", without missing the context of the image.

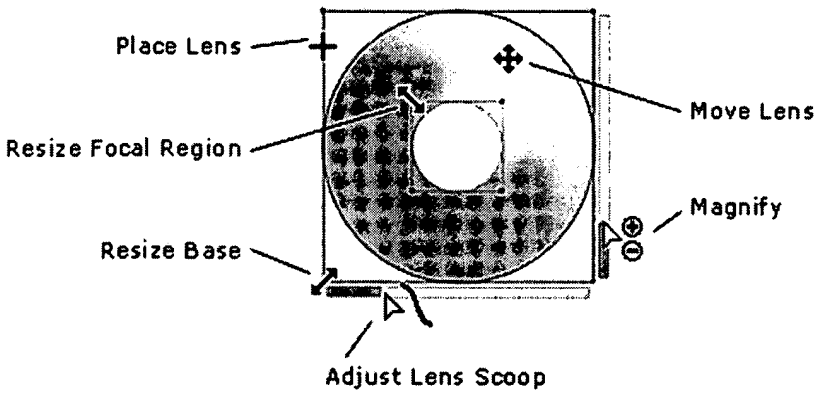
Image courtesy of Idelix
Click on the image to enlarge it.

One of the latest appearances in the commercial arena is "**Pliable Display Technology" PDT,** by Idelix. This is a technology that incorporates, to a certain extent, the tradition of **bifocal displays**, that appeared in the 80s.

These systems apply a transformation to the image so that a part of the same, the one that is in our focus, is enlarged while the rest suffers a distortion that allows us to see all the elements that make it up, losing detail but retaining context.

PDT has a similar effect to placing a lens in front of the image or document that we want to look at. This lens, unlike the conventional ones, has a portion of the same that reduces the magnification gradually until you reach 0.

This way the centre of the lens show us the detail of what is of our interest while the distortion of the



PDT Configurable parameters of the lens. Image courtesy of Idelix.

periphery creates a deformed transition that allows us to see the context without losing information.

The advantages of a digital lens like this lie in the fact that the **magnification, the size and shape of the whole lens and of the zone of constant magnification, the type of distortion, are all easily configurable parameters**. This way we can customise a lens that comprehends the properties of zoom scroll pan, and separate views.

In order to understand this technology better **it's worth downloading some of the** demos. One of them allows us to edit an image, drawing onto it combining the lens with the edition so that we have higher accuracy and control in the center of the lens. It's worth trying it.

Until here we could say that it's OK but it's not a breakthrough. Nevertheless **PDT has some other possibilities**. For instance it's able to make appear new information layers depending on the magnification at a particular point. Idelix offers a software development kit (SDK) that allows you to integrate this technology in your own applications. You can also purchase a Geographic Information application for ArcView 8.1 that includes the PDT in Arcview.

PDT is an efficient and practical technology. Maybe it won't revolutionize the world of visualisation but it's a noticeable step forward in the usability of focus + context visualisation, with the virtue of being able to be integrated in existing applications.

Links of this issue:

http://www.infovis.net/printRec.php?rec=llibre&lang=2#InformationVisualisation
http://www.infovis.net/printMag.php?num=3&lang=2
http://www.idelix.com
http://www.idelix.com/pdtdemos.shtml

Subscribe to the free newsletter

Copyright InfoVis.net 2000-2005.

Top

Back to the Magazine